“THE EFFECTS OF ANTERIOR VERSUS INFERIOR GLIDE IN IMPROVING FUNCTIONAL ACTIVITY OF THE SHOULDER IN PATIENTS WITH ADHESIVE CAPSULITIS”

A project submitted in partial fulfillment

of the requirement for the degree of

MASTER OF PHYSIOTHERAPY

Submitted by

Reg.No:271710205

Under the guidance of

Prof. Dr. C.SIVAKUMAR MPT(ORTHO), MIAP, Ph.D.

Submitted to

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI -32

PPG COLLEGE OF PHYSIOTHERAPY

COIMBATORE- 35.

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Dissertation Evaluated on: ……...

INTERNAL EXAMINER **EXTERNAL EXAMINER**

CERTIFICATE - I

This is to certify that the dissertation entitled **"THE EFFECTS OF ANTERIOR VERSUS INFERIOR GLIDE IN IMPROVING FUNCTIONAL ACTIVITY OF THE SHOULDER IN PATIENTS WITH ADHESIVE CAPSULITIS"** is a bonfire compiled work, carried by **Reg. No: 271710205** PPG College of Physiotherapy, Coimbatore-641035 in partial fulfillment for the award of degree in Master of Physiotherapy as per the doctrines of requirements for the degree from **THE TAMILNADU DR. M. G. R. MEDICAL UNIVERSITY, CHENNAI-32.**

This work supervised by **Prof. Dr. C.SIVAKUMAR MPT (ORTHO), MIAP, Ph.D.**

PRINCIPAL

Prof. Dr. C.SIVAKUMAR MPT (ORTHO), MIAP, Ph.D.

CERTIFICATE - II

This is to certify that the dissertation entitled **"THE EFFECTS OF ANTERIOR VERSUS INFERIOR GLIDE IN IMPROVING FUNCTIONAL ACTIVITY OF THE SHOULDER IN PATIENTS WITH ADHESIVE CAPSULITIS"** is a bonafide compiled work, carried by **Reg. No: 271710205 ,** PPG College of Physiotherapy, Coimbatore-641035 in partial fulfillment for the award of degree in Master of Physiotherapy as per the doctrines of requirements for the degree from **THE TAMILNADU DR. M. G. R. MEDICAL UNIVERSITY, CHENNAI-32,** under my guidance and supervision.

GUIDE

Prof. Dr. C.SIVAKUMAR MPT (ORTHO), MIAP, Ph.D.

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CHAPTER I

INTRODUCTION

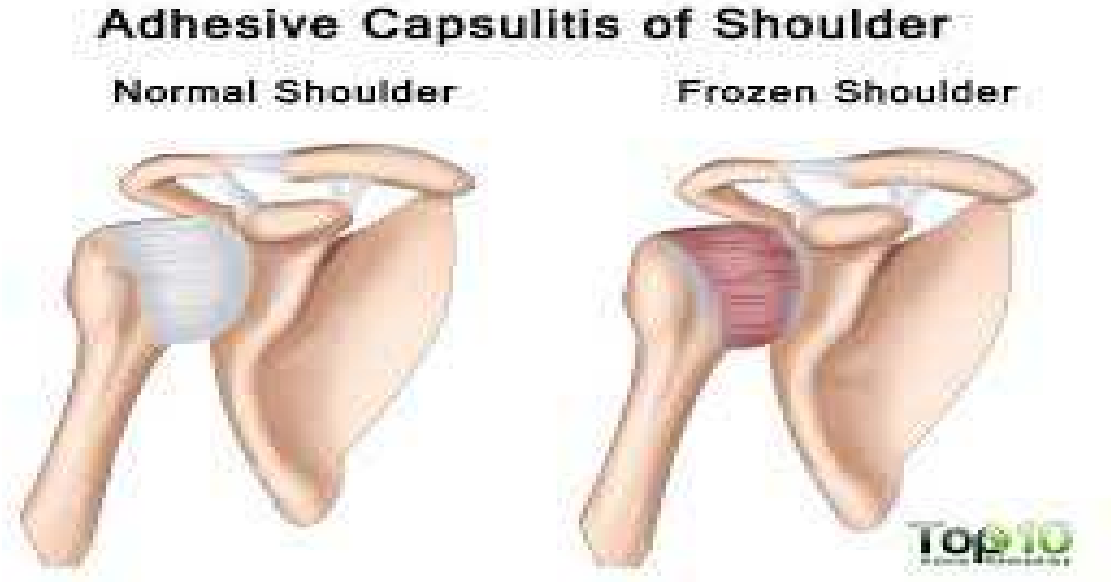
1.1 BACKGROUND OF THE STUDY

Adhesive Capsulitis is a term used to describe an insidious onset of pain and movement restriction in the glenohumeral joint. The shoulder is a complex anatomical structure that allows movement in many planes and crucial for activities of daily living. Decreased shoulder mobility is a serious clinical finding. The various syonymous for Adhesive Capsulitis are Adhesive capsulitis, pericapsulitis, scapula-humeral periarthritis, and humeroscapular fibrocitis, and periarthritis, stiff and painful shoulder. The term Adhesive Capsulitis was coined by Codmann in 1934. Nevaiser in 1945 coined the term adhesive capsulitis. Duplay in 1872 was first credited with describing the painful stiff shoulder referring to the condition as humero-scapular periarthritis secondary to sub acromial bursitis.

Primary adhesive capsulitis affects from 2-3% of the general population, it affects female slightly more than male and is seen in ages 40-70 years. Bilateral involvement occurs in 10-40% cases. Adhesive Capsulitisis syndrome defined in its purest sense as idiopathic painful restriction of shoulder movement that results in global restriction of glenohumeral joint. Clinically most authorities agree that frozen caused by inflammation of joint capsule and synovium that eventually results in the formation of capsular contractions. Clinically there is global loss for both passive and active range of motion of the glenohumeral joint with external rotation being the most restricted psychological movement, thus leading to functional limitation. Even though this condition is considered self-limiting with most patients having spontaneous resolution within 3 years some patients suffer long term pain and restricted shoulder motion well beyond 3 years. A disability of this duration places severe emotional and economic hardship on the affected person. Most patients are unwilling to suffer this pain, disability and sleep deprivation without seeking treatment.

Rehabilitation programs consists of interventions like heart or ice applications, ultrasound, TENS, active and passive range of motion exercises and mobilization techniques have been shown to improve shoulder range of motion in all planes thus

increasing the functional activity of the person. Mobilization is a low velocity passive movement performed by the clinician to an affected joint within or at the limits of joint range of motion at a speed slow enough that the patient can stop the movement.



1.2. NEED FOR THE STUDY

To determine the direction of force application (anterior versus inferior) for glenohumeral joint mobilization that would result in the greatest improvement in shoulder external rotation range of motion, abduction and the functional activity in individuals with Adhesive Capsulitis.

The outcome of this study could potentially guide clinical decision making regarding the most effective direction of mobilization to improve functional activity of the patients.

1.3. AIM OF THE STUDY

The aim of the study is to find out the effects of anterior versus inferior glide in improving functional activity of the shoulder in patients with Adhesive Capsulitis.

1.4. OBJECTIVES OF THE STUDY

To study the effectiveness of anterior glide in improving external rotation range of motion in Adhesive Capsulitis.

To study the effectiveness of inferior glide in improving external rotation range of motion in Adhesive Capsulitis.

To compare the effectiveness of anterior glide and inferior glide in improving external rotation range of motion in Adhesive Capsulitis population.

1.5. HYPOTHESIS

NULL HYPOTHESIS

There is no significant improvement in external rotation range of motion, abduction and functional activity in Adhesive Capsulitispatients with anterior glide joint mobilization.

There is no significant improvement in external rotation range of motion, abduction and functional activity in Adhesive Capsulitispatients with inferior glide joint mobilization.

ALTERNATE HYPOTHESIS

There is significant improvement in external rotation range of motion, abduction and functional activity in Adhesive Capsulitispatients with anterior glide joint mobilization.

There is significant improvement in external rotation range of motion, abduction and functional activity in Adhesive Capsulitispatients with inferior glide joint mobilization.

CHAPTER II

REVIEW OF LITERATURE

GRAVIER G. NICHOLSON,MS,PT[14] :

The purpose of this investigation was to determine the effects of passive mobilization active exercises in patients with painfully restricted shoulders.Twenty patients with painful glenohumeral restrictions were randomly placed in one of two groups. The experimental group received mobilization and active exercises two to three times per week for 4 weeks.The controls received only active exercises.Pain questionnaires were answered and isolated glenohumeral mobility measurements were taken initially and at weekly intervals during the 4 weeks of treatment .With the exception of internal rotation in the, control group ,all motions increasing significant from baseline in both groups.Passive abduction improved significantly more in the mobilization group than in the control group. Pain scores decreased more in the mobilization group; however,the difference between the groups was not significant. The results suggest that joint mobilization and exercises are clinically effective in the treatment of painfully stiff shoulders.

RIZKET AL[15]

A study was conducted with 50 patients with Adhesive Capsulitis.Patients divided into two groups .Group A(26 patients with 28 involved shoulders) was treated utilizing heat modalities,Codman's exercises, shoulder wheel-pulley exercises, and gentle,, rhythmic stabilization manipulation of the glenohumeral joint. Group-B (24 patients with 28 involved shoulders) was treated using prolonged pulley traction. Scapular strengthening exercises and transcutaneous nerve stimulation simultaneously. Although both groups showed improvement, Group-B displayed better results at the completion of the treatment period.

SURENKOK O,ET AL.,(2009)[16]

A double-blinded,randomized,placebo-controlled trial was conducted to evaluate the initial effect of the shoulder mobilizations at a sports physiotherapy clinic.39 subjects(22 women,17 men; mean age 54.30+/-14.16 y,age range 20-77 y) were participated.A visual analog scale, ROM,scapular upward rotation,and function were

assessed before and just after shoulder mobilizations.(n=13) consisted of the application of superoinferior gliding, rotations, and distraction to the scapula.The sham (n=13) condition replicated the treatment condition except for the hand positioning.The control group (n=13)did not undergo any physiotherapy rehabilitation program.Pain severity was assessed with a visual analog scale.Scapularupward rotation was measured with a baseline digital inclinometer, Constant shoulder score (CSS) was used to measure shoulder function.After shoulder mobilizations, we found significant improvements for shoulder ROM,scapular upward rotation and CSS between pretreatment compared with the sham and control groups .In the sham group, shoulder-ROM values increased or decreased for the shoulder and scapular upward rotation was not changed.ROM, and physical function of the shoulder were not significantly different of the sham group than in controls (p>.05).SM may be a useful manual therapy technique to apply to participants with a painful limitation of the shoulder. Mobilizations increases ROM and decreases pain intensity.

SUNAM KUMAR BARUAL,ZAHANGI ALAM (2014)[18]

Phonophorosis is a variant of ultrasound in which biologically active substances are combined with the coupling medium in the hope that ultrasound will force the active material into tissue 18.For instance, NASIDs gel is used in combination with enhance pain relief local action. Although this technique has been in use since the 1960s, neither its effectiveness, penetration, optimal frequency, appropriate coupling mediums/active materials, nor amount of material lost to the substances circulation is well established. Although some clinical studies report phonophoresis with a variety of agents successful in terms of transdermal migration could involve increased cell permeability from the thermal effects of ultrasound. Ultrasound coupling gel is mixed with various chemical substances to produce the phonophoresis coupling agent. Typicalphonophoresis is treatment parameters are similar to those of standard ultrasound: pulsed mode,1MHz transducer frequency, strokingtechnique, at 1-1.5w/cm^2 , for approximately5 to 10 min per site 19.

SMITA BHIMRAO KANASE,S.SHANMUGAM(2012)[19] The study was done in Adhesive Capsulitis patients with the aim to find out additional effect of Kinesiotaping along with Maitland mobilization in managing Adhesive Capsulitis. To study and

compare effectiveness of Maitland mobilization and Kinesiotaping on functional outcome in Adhesive Capsulitis.Method: 32 subjects were divided in 2 Groups.Group A(experimental Group)treated with Maitland mobilization and Kinesiotaping and Group B(control Group)treated with Maitland mobilization .Both the Groups were initially treated with hot moist packs 20 min and Ultrasound for 5 min .Exercises were advised. Subjects received 4 weeks interventions for 3 days/week. Outcome measures VAS,SPADI and ROM were assessed before and after intervention. The results showed improvement in pain and disability in both groups,but improvement in group A was statistically extremely significant than group B.Maitland mobilization with Kinesiotaping along with conventional therapy improves the pain and disability in patients with Adhesive Capsulitis.

ANDREA J.JOHNSON, DPTSC, JOSEPH J.GODGES, DPT, GRENITH J. ZIMMERMAN, PHD, LEROY L.OUNANIAN,MD(2007)[21]

A Randomized clinical trial to compare the effectiveness of anterior versus posterior glide mobilization techniques for improving shoulder external rotation range of motion(ROM) in patients with adhesive capsulitis.Physical therapist use joint mobilization techniques to treat motion impairments in patients with adhesive capsulitis.However, opinions of the value of anterior versus posterior mobilization procedures to improve external rotation ROM differ.Twenty consecutive subjects with a primary diagnosis of shoulder adhesive capsulitis and exhibiting a specific external rotation ROM deficit were randomly assigned to 1 of 2 treatment groups.All subjects received 6 therapy sessions consisting of application of therapeutic ultrasound, joint mobilization and upper-body ergometer exercise.Treatment differed between groups in the direction of the mobilization technique performed.Shoulder external rotation ROM measured initially and each treatment session was compared within and between groups and analysed using a 2-way ANOVA,followed by paired and independent t tests.There was no significant difference in shoulder external rotation ROM between groups prior to initiating the treatment program. A significant difference between Groups (p=.001) was present by the third treatment.The individuals in the anterior mobilization group had a mean improvement in external rotation ROM of 3.0^0(SD,10.8^0) ;p=10). Where ass the individual in the posterior mobilization group had a mean improvement

of11.3^0(SD,7.4^0;p<.001). A posteriorly directed joint mobilization technique was more effective than an anteriorly directed mobilization technique for improving external rotation ROM in subjects with adhesive capsulitis. Both groups had a significant decrease in pain.

SURENKOK ET AL

They evaluated the initial effects of scapular mobilization (SM) on shoulder range of motion(ROM).Scapular upward rotation, pain and function. After significant improvements for shoulder ROM, scapular upward rotation and CSS(Constant shoulder score) between pre- treatment and post treatment compared with the sham and control groups .So this study found scapular mobilization may be a useful manual therapy technique to apply to participants with a painful limitation of the shoulder .scapular mobilization increases ROM and decreases pain intensity.

GONCA BUMIN; FILIIZ CAN(2001)

The purpose of this study was to compare the effects of iodex iontophoresis and iodexphonophoresis methods on pain release in shoulder periarthritis. Forty five cases who had shoulder periarthritis were randomly divided into three equal groups (n=15) .Iodex iontophoresis method was applied to the first group and iodexphonophoresis was applied to the second group. Third group was selected as control group to which placebo was applied .Pre-treatment and post-treatment pain scores were assessed by visual analog scale. In the result of pain assessment. The difference between the pre-treatment and post-treatment of pain measurements within groups was more significant in iontophoresis and phonophoresis groups than in the placebo group ($p<0.05$). The results of this study indicate that iodex iontophoresis and phonophoresis methods were effective in decreasing pain. It can be concluded that application of iodex iontophoresis and phonophoresis would be alternative methods in addition to the other analgesic physiotherapy methods.

MEI-HWA JANB , CHEIN-WEI CHANGA, JIU-JENQ LIN(2015)24

Treatment strategies targeting abnormal shoulder kinematics may prevent pathology develops, shorten its duration. We examined the effectiveness of the end-range mobilization treatment approach (EMSMTA) in a sub group of subjects with Adhesive Capsulitis syndrome (ACS). Based on the kinematics criteria from a prediction method, 34 subjects with FSS were recruited. Eleven subjects were assigned to the control group,

and 23 subjects who met the criteria were randomly assigned to the criteria-control group with a standardized physical therapy program or to the EMSMTA group. Subjects attended treatment sessions twice a week for 8 weeks. Range of motion (ROM),disability score and shoulder complex kinematics were obtained at the beginning,4 weeks, and 8 weeks. Subjects the EMSMTA group experienced greater improvement in outcomes compared with the criteria-control group at 4 weeks (mean difference=0.2 of normalized hand -behind back reach) and 8 weeks (mean difference=22.4 degrees tipping and 0.32 rhythm ratio). Similar improvements were found between the EMSMTA group and control group. The EMSMTA was more effective than a standardized physical therapy program in a subgroup of subjects who fit the criteria from a prediction method.

CHAPTER III

MATERIALS AND METHODLOGY

3.1. STUDY DESIGN

Experimental study design

3.2. STUDY POPULATION

Patients with Adhesive Capsulitis.

3.3. SAMPLE SIZES

Sample size is 30 subjects

- Group A-15 patients
- Group B-15 patients

3.4. SAMPLING TECHNIQUE

Selected subjects were randomly allocated in to two groups by using lot method.

3.5. STUDY SETTINGS

Ashwin Hospital, Coimbatore**.**

3.6. STUDY DURATION

The study duration was about 6 Months.

3.7. SELECTION CRITERIA

INCLUSION CRITERIA

- Diagnosed primary idiopathic adhesive capsulitis/frozen shoulder
- Age: 40-60 years
- Patients having painful stiff shoulder at least for 3 months
- Unilateral condition
- Both male and female patients, Both left and right handed peoples

EXCLUSION CRITERIA:

- Previous shoulder surgeries to the affected shoulder, neck and elbow
- Secondary adhesive capsulitis Eg: fractures around shoulders
- Shoulder girdle motor control deficits associated with neurological disorders Eg: stroke, parkinson's disease
- Injection with cortico steroids in the affected shoulder in the preceding 4 weeks

3.8 MATERIALS

- Couch
- Pillow
- Blankets
- Ultrasound
- Kalterborn mobilization grade

3.9.PARAMETER

- KALTRENBORN MOBILISATION GRADE
- GONIOMETER

3.10. PROCEDURE

- 30 patients are randomly selected from the departments and randomly assigned in 2 groups. Group-A 15, Group-B 15.
- All subjects were evaluated before giving treatment. Therapeutic ultra sound with the frequency of 1 MHz was administered for all the subjects for about 10 min, with an intensity 0.8W/cm^2 before doing the mobilization.
- To Group-A given anterior mobilization
- Group-B given inferior mobilization
- All subjects are asked to do shoulder exercises after mobilization. Patients were assigned and graded on day 1 of treatment and at the end of treatment day (after 6 weeks). Pre-test and Post-test results are compared to check the efficacy between the 2 forms of techniques (which one is better).

CHAPTER IV

DATA ANALYSIS AND RESULTS

4.1 DATA ANALYSIS

Master Charts- Using Rom Scale

Table – I, Group – A – Anterior Glide

Sl. No.	Sex	Pre-Treatment	Post – Treatment		
			Week 2	Week 4	Week 6
1	M	20	28	35	45
2	F	18	25	38	45
3	M	22	28	35	40
4	F	16	22	30	35
5	M	25	30	35	45
6	F	20	30	40	48
7	F	22	28	38	45
8	M	15	25	35	40
9	M	14	22	28	35
10	F	30	38	45	48
11	M	18	25	35	45
12	F	20	30	42	48
13	M	15	20	30	40
14	M	25	30	38	48
15	F	30	35	42	48

Table – II

Group – B – Inferior Glide

Sl. No.	Sex	Pre-Treatment	Post – Treatment		
			Week 2	Week 4	Week 6
1	M	20	25	30	35
2	F	22	28	35	40
3	F	18	25	30	35
4	M	20	25	30	35
5	F	25	30	35	40
6	F	15	20	25	30
7	M	30	35	40	45
8	F	20	28	32	40
9	M	25	30	35	42
10	F	22	28	32	40
11	M	30	35	40	45
12	M	35	40	45	48
13	F	25	30	38	42
14	F	35	40	45	48
15	M	18	25	30	38

Comparison of Group – A patients - Pre-Treatment and Post-Treatment of ROM Scale

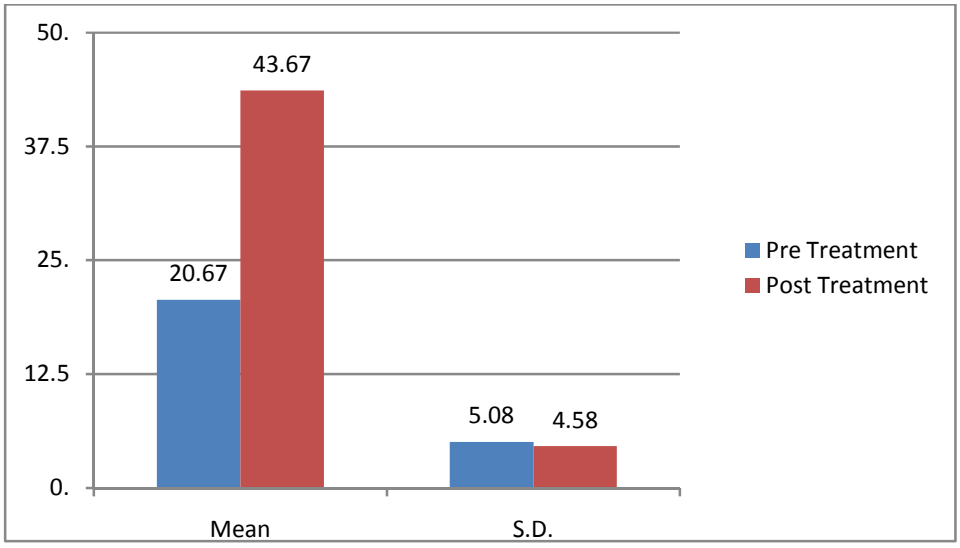
Table – III

Comparison of Pre-Test & Post-Test Values of Group – A

Sl. No.	Group - A	Mean	S.D.	't' value
1	Pre Treatment	20.67	5.08	5.37
2	Post Treatment	43.67	4.58	

Graph - 1

Group – A



Interpretation:

The calculated value of intervention group was 5.37, the table value at 5% level of significance at 14 degrees of freedom 2.05, as the calculated value is more than the table value, the null hypothesis is rejected and alternate hypothesis is accepted. So there is a significant between before and after applying the treatment.

Comparison of Group – B patients - Pre-Treatment and Post-Treatment of ROM

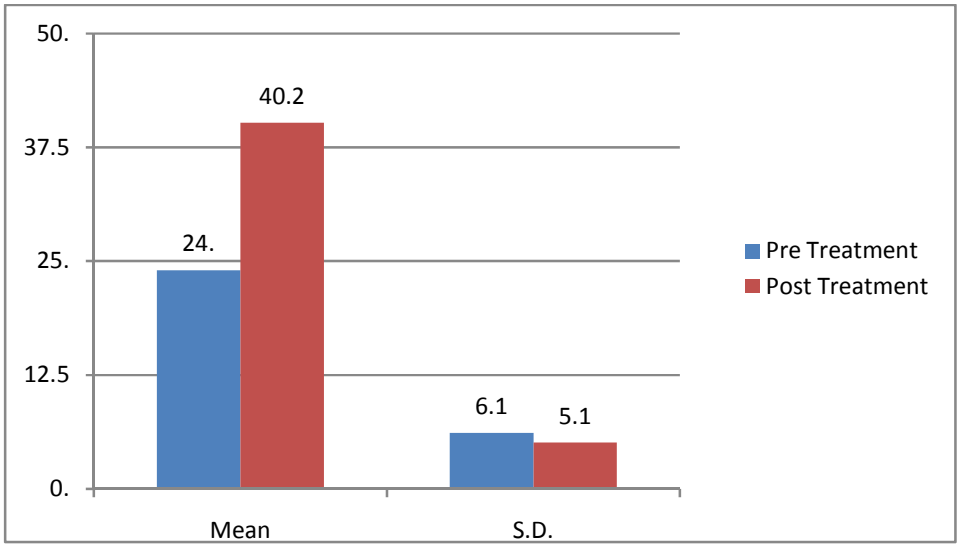
Table – IV

Comparison of Pre-Test & Post-Test Values of Group - B

Sl. No.	Group - B	Mean	S.D.	't' value
1	Pre Treatment	24.00	6.13	3.65
2	Post Treatment	40.20	5.10	

Graph - 2

Group –B



Interpretation:

The calculated value of Control group was 3.65, the table value at 5% level of significance at 14 degrees of freedom 2.07, as the calculated value is high than the table value, the null hypothesis is rejected and alternative hypothesis is accepted. So there is a significant difference between before and applying treatment.

Master Charts-USING VAS SCALE

Table – V, Group – A

Sl. No.	Sex	Pre-Treatment	Post – Treatment		
			Week 2	Week 4	Week 6
1	M	8	8	6	6
2	F	7	7	7	5
3	M	8	7	7	6
4	F	7	6	6	6
5	M	8	6	6	6
6	F	8	7	6	5
7	F	7	8	7	5
8	M	8	8	7	6
9	M	9	8	7	6
10	F	8	8	8	6
11	M	9	8	7	7
12	F	9	8	7	7
13	M	8	7	8	6
14	M	7	8	7	5
15	F	8	8	7	6

Group – B

Sl. No.	Sex	Pre-Treatment	Post – Treatment		
			Week 2	Week 4	Week 6
1	M	7	7	6	6
2	F	8	8	8	7
3	F	7	7	7	7
4	M	8	8	8	8
5	F	7	7	8	6
6	F	9	9	8	8
7	M	8	8	7	7
8	F	8	8	8	7
9	M	9	8	8	8
10	F	8	8	7	7
11	M	7	7	7	6
12	M	8	8	8	6
13	F	9	8	6	8
14	F	8	8	8	6
15	M	8	8	8	7

Comparison of Group – A patients - Pre-Treatment and Post-Treatment of VAS

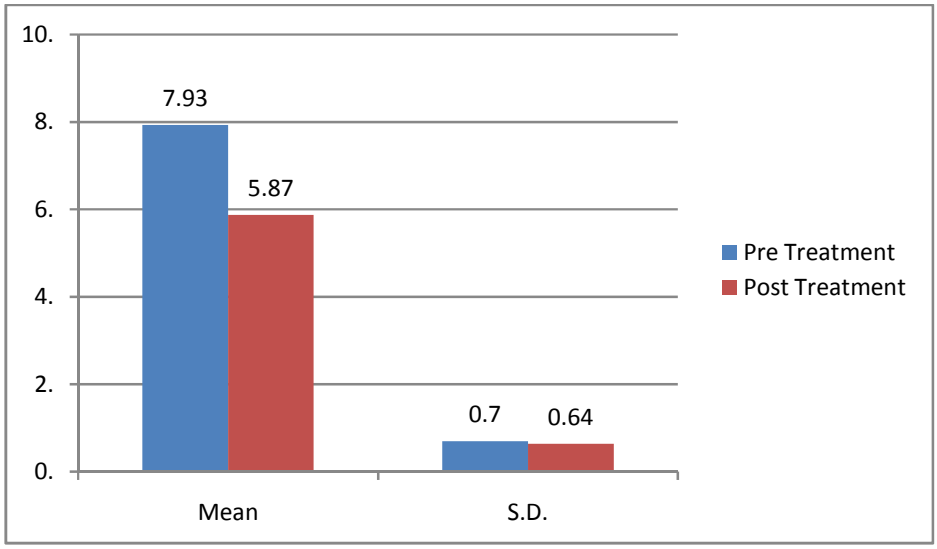
Table – VII

Comparison of Pre-Test & Post-Test Values of Group – A

Sl. No.	Group – A	Mean	S.D.	't' value
1	Pre Treatment	7.93	0.70	3.29
2	Post Treatment	5.87	0.64	

Graph - 3

Group – A



Interpretation:

The calculated value of intervention group was 3.29, the table value at 5% level of significance at 14 degrees of freedom 2.05, as the calculated value is more than the table value, the null hypothesis is rejected and alternative hypothesis is accepted. So there is a significant change before and after applying the treatment.

Comparison of Group - B patients - Pre-Treatment and Post-Treatment

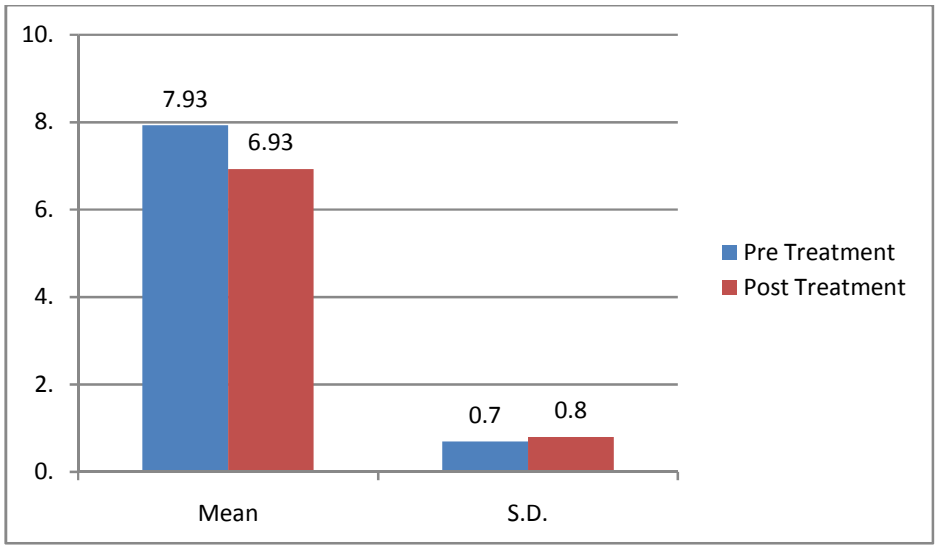
Table – VIII

Comparison of Pre-Test & Post-Test Values of Group - B

Sl. No.	Group - B	Mean	S.D.	't' value
1	Pre Treatment	7.93	0.70	2.13
2	Post Treatment	6.93	0.80	

Graph - 4

Group - B



Interpretation:

The calculated value of control group was 2.13, the table value at 5% level of significance at 14 degrees of freedom 2.06, as the calculated value is more than the table value, the null hypothesis is rejected and alternative hypothesis is accepted. So there is a significant change before and after applying the treatment.

CHAPTER V

DISCUSSION

Adhesive Capsulitisis a term used to describe an insprain and movement restriction in the glenohumeral joint. The shoulder is a complex anatomical structure that allows movement in many planes and crucial for activities of daily living. Decreased shoulder mobility is a serious clinical finding. The various synonymous for Adhesive Capsulitis are Adhesive capsulitis, pericapsulitis, scapula-humeral periarthritis, humeroscapular fibrocitisand periarthritis, stiff and painful shoulder. The term Adhesive Capsulitis was coined by Codmann in 1934. Nevaiser in 1945 coined the term adhesive capsulitis. Duplay in 1872 was first credited with describing the painful stiff shoulder referring to the condition as humero-scapular periarthritis secondary to sub acromial bursitis.

Primary adhesive capsulitis affects from 2-3% of the general population, it affects female slightly more than male and is seen in ages 40-70 years. Bilateral involvement occurs in 10-40% cases. Adhesive Capsulitis is syndrome defined in its purest sense as idiopathic painful restriction of shoulder movement that results in global restriction of glenohumeral joint. Clinically most authorities agree that frozen caused by inflammation of joint capsule and synovium that eventually results in the formation of capsular contractions. Clinically there is global loss for both passive and active range of motion of the glenohumeral joint with external rotation being the most restricted psychological movement, thus leading to functional limitation. Even though this condition is considered self-limiting with most patients having spontaneous resolution within 3 years some patients suffer long term pain and restricted shoulder motion well beyond 3 years. A disability of this duration places severe emotional and economic hardship on the affected person. Most patients are unwilling to suffer this pain, disability and sleep deprivation without seeking treatment.

The subjects were divided into two groups Group-A and Group-B each group consists 15 subjects in each. Group-A subjects received anterior glide along with home exercises. Group-B subjects received inferior glide along with home exercises for 6 weeks, 4 sessions per z universal goniometer and VAS scale should be used all the values

were tabulated and statistically analyzed in 2 weeks of assessment, 4 weeks of assessment, 6 weeks of assessment by using paired, unpaired t-test and Mann-Whitney test. Paired t-test is used to compare data set within the groups and unpaired t-test is used to compare the data set between the groups. Student t-test analysis revealed significant difference between the two groups anterior glide and inferior glide in all three assessments. Among this anterior glide along with home exercises in this study was found to be effective in improving shoulder range of motion and decreasing pain than inferior glide along with home exercises group.

CHAPTER VI

LIMITATION AND RECOMMENDATION

LIMITATION

- The sample size of the study is small.
- The duration of the study is short.
- Only shoulder external rotation ROM has been assessed.

RECOMMENDATION

- Further research should be considered using large samples.
- Study can be performed in controlled laboratory settings.
- Further study has to include subject from different professions.

CHAPTER - VII

SUMMARY AND CONCLUSION

The objective of the study was to find out the effect of anterior glide versus inferior glide in patients with Adhesive Capsulitisis. The thirty subjects with Adhesive Capsulitis patients were selected based on the inclusion and exclusion criteria. The subjects were divided into two groups Group-A and Group-B each group consist 15 subjects in each. Group-A subjects received anterior glide along with home exercises are given. Group-B: 15 subjects received inferior glide along with home exercises for 6 weeks, 4 sessions per week assessed every two weeks 2,4,6 weeks respectively. Universal Goniometer and VAS scale should be used. All the values were tabulated and statistically analyzed by using paired, unpaired t-test. Paired t-test is used to compare data set within the groups and unpaired t-test is used to compare the data set between the groups.

This concludes that anterior glide was given in this study was found to be effective in improving shoulder range of motion and reducing pain than inferior glide.

CHAPTER VIII

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CHAPTER IX

ANNEXURE I

INFORMED CONSENT FORM

TITLE: THE EFFECTS OF ANTERIOR VERSUS INFERIOR GLIDE IN IMPROVING FUNCTIONAL ACTIVITY OF THE SHOULDER IN PATIENTS WITH ADHESIVE CAPSULITISIS

INVESTIGATOR: MS.PREETHI.H

CO-INVESTIGATORS: Prof. Dr. C.SIVAKUMAR MPT (ORTHO), MIAP, Ph.D.

PURPOSE OF THE STUDY:

I ---------- have been informed that this study will help clinicians, & therapists to find out the effectiveness of manual diaphragm release technique on dyspnea, diaphragmatic excursion and inspiratory capacity among subjects with chronic bronchitis.

PROCEDURE:

I …….. Understand that I'll undergo the experiment with**MS.PREETHI.H/Dr. C.SIVAKUMAR,** under the direct supervision of the physiotherapist. I am aware that I have to follow therapist's instruction as has been told to me.

RISK AND DISCOMFORT:

I……. understand that there are no potential risks associated with this procedure, and understand that **MS.PREETHI.H/Dr. C.SIVAKUMAR,** will accompany me during this procedure. There are no known hazards associated with this procedure.

CONFIDENTIALITY:

I ……understand that the medical information produced by this study will be confidential. If the data are used for publication in the medical literature or for teaching purpose, no names will be used. And photographs, audio and videotapes will be used without identity for publication and presentation.

PHOTOGRAPHY CONSENT:

……. Have explained to me that photography is required in order to illustrate various aspects of the study for the thesis and other articles, and at the presentation **Dr. C.SIVAKUMAR** or conference. By giving my consent I authorize**MS.PREETHI.H**to use any of the photographs taken of me in printed format, in slides for presentation.

REQUEST FOR MORE INFORMATION:

I…… understand that I may ask any question about the study at any times. **MS.PREETHI.H/Dr. C.SIVAKUMAR,**are available to answer my question. Copy of this concern form will be given to me keep for my careful reading.

REFUSAL OR WITHDRAWAL OF PARTICIPATION:

I…… understand that my participation is voluntary and I may withdraw consent and discontinue participation at any time after he has explained the reasons for doing so.

INJURY STATEMENT:

I understand that the diagnostic/ treatment procedure, under the guidance of my therapist, is likely to cause any / no injury. In such case medical attention will be provide, but no compensation will be provided.

I understand my agreement to participation in this study and I am not waiving any of my legal rights. I confirm that**MS.PREETHI.H/Dr. C.SIVAKUMAR,**have explained me the purpose of the study, the study procedure and possible rick that I may experience.

I have read and I have understood this concern to participate as a subject in this study.

---------- ----------

SUBJECT **DATE**

---------- ----------

WITNESS SIGNATURE **DATE**

I have explained (**MS.PREETHI.H/Dr. C.SIVAKUMAR**) the purpose of the research, the procedure required and the possible risks and benefits, to the best of my ability.

---------- **----------**

INVESTIGATOR **DATE**

INVESTIGATOR:

1. **MS.PREETHI.H**
2. **Dr. C.SIVAKUMAR**

ANNEXURE-II

ORTHOPAEDIC ASSESMENT

Name :

Age :

Occupation :

Address :

Chief complaints :

History :

Present medical history :

Past medical history :

Drug history :

Surgical history :

Personal history :

Family history :

Socio-economic history :

Psychological history :

Environmental history :

Prior level of activity :

Associated problem :

Pain history :

Site :

Side :

Onset :

Duration :

Type :

Nature :

Intensity :

Frequency :

Aggravating factors :

Relieving factor :

Vital signs :

Temperature :

Blood pressure :

Heart rate :

Respiratory rate :

Objective examination :

On observation :

Built :

Posture :

Attitude of limbs :

Swelling :

Bony contours :

Soft tissue contours :

Deformities :

Gait :

Tropical changes :

Respiration :

Type :

Depth :

Pattern :

Mode of ventilations :

External appliances :

Patient’s expression :

Patient's attitude :

On palpation :

Tenderness :

Warmth :

Edema :

Pulse :

On examination :

Range of motion :

Region	Active		Passive	
	Right	Left	Right	Left

End feel :

Muscle power :

Deep tendon reflexes :

Sensation :

Limb length discrepancy :

Limb girth measurement :

Postural assessment :

Lying :

Sitting :

Standing :

Gait :

Stride length: Step length:

Walking base: gait cycle-stance and swing:

Stride period: step period:

Single and double support: cadence:

Stance/swing ratio:

Abnormal gait :

Deformity :

Functional assessment :

Special test :

Investigation :

Diagnosis :

Problem :

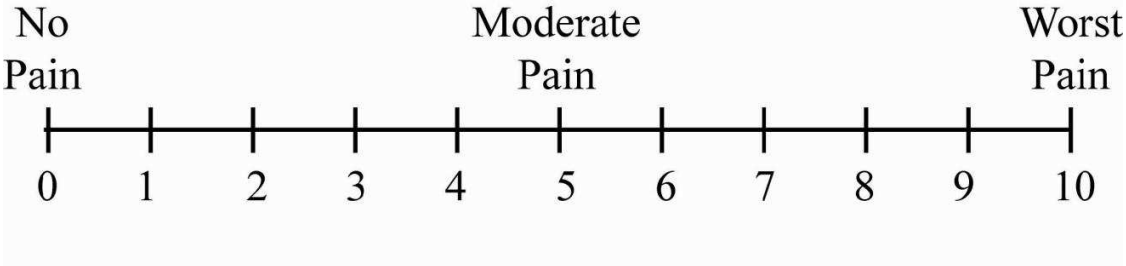
Aims :

Means :

Home program :

ANNEXURE-III

VISUAL ANALOGUE SCALE



Visual analogue scale (VAS) is a measurement instrument that tries to measure a characteristic or attitude that is believed to range a continuum of values and cannot easily be measured directly.

Operationally VAS is usually a horizontal line, 100 mm in length, anchored by word descriptors at each end. It is determined by measuring in millimeters from the left hand end of the line to the point that patient marks.